

THE STATUS OF PERIZOMA GRANDIS HULST (LEPIDOPTERA, GEOMETRIDAE).

By DOUGLAS C. FERGUSON, Halifax, Nova Scotia.

Recent collecting in the White Mountains, N. H. and Cape Breton Highlands National Park, N. S. turned up in series what at once appeared to be a second species of *Perizoma* Hbn. in addition to *basaliata* Wlk., the species usually prevalent in the north-east. Both occurred together in these localities. Comparison of the male genitalia was rather unsatisfactory and showed no tangible differences. Further investigation, however, revealed in the female genitalia rather striking differences that at once set the two things apart as distinct species. The larger one subsequently turned out to be the same as *grandis* Hulst of the Pacific coast region, which must therefore be removed from its association with *basaliata* and regarded as distinct.

Perizoma basaliata Wlk.

Larentia basaliata Walker, Cat. Lep. Het. Br. Mus., Pt. XXIV, p. 1185, 1862.

Type locality: United States (Doubleday collection).

Cidaria cexplagiata Walker, Cat. Lep. Het. Br. Mus., Pt. XXVI, p. 1728, 1862.

Type locality: Nova Scotia (Collected by Lt. Redman).

Basaliata is a small species, the average expanse being slightly less than 19 mm. The coloring is variable, but usually the blackish scaled median area contrasts sharply with the light brown shade that occupies the space between the basal and t.a. lines, and the inner half of the subterminal area next the t.p. line. In the outer third of the wing there is usually a blackish patch bounded outwardly by the fourth and fifth teeth of the s.t. line, and immediately below this a larger gray or whitish patch, often conspicuous, sometimes vague and suffused.

The main features of the female genitalia are the heavily chitinized ductus bursae and the armed signum. The rigidly chitinized ductus is curiously interrupted by a membranous connection near where it joins the bursa. The signum is in the form of a slender ring armed with spines, and partially encircles the bursa near the equator, causing a constriction on the left side. Figure 2 was drawn from a specimen taken at Dorchester, N. B.

Perizoma basaliata is essentially northern and eastern, occurring from Nova Scotia to Ontario and southward through the mountain-

ous areas of New England and New York to the Catskills in July and early August. Western records are doubtful and may refer to *grandis*.

According to Mr. D. S. Fletcher of the British Museum (Natural History), *basaliata* and *explagiata* of Walker undoubtedly refer to the same species, and a photograph of the type of *explagiata* which he kindly furnished confirms this.

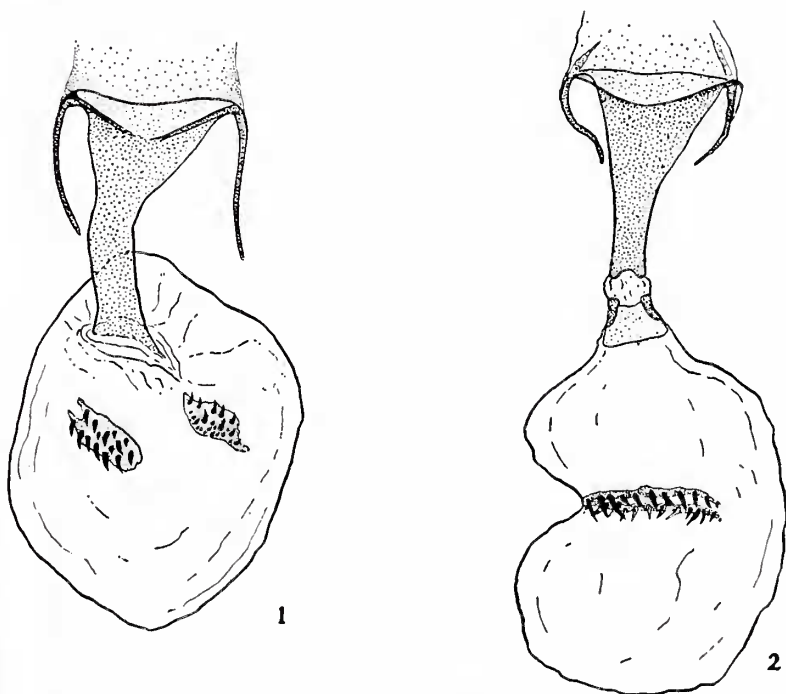


Fig. 1. Female genitalia of *Perizoma grandis* Hulst, showing bursa, ductus bursae and ostium.

Fig. 2. Female genitalia of *Perizoma basaliata* Walker, showing the same parts.

Perizoma grandis Hulst

Eucymatoge grandis Hulst, Trans. Am. Ent. Soc., XXIII, 273, 1896.

Type locality: Washington.

Grandis is larger than *basaliata*, averaging about 23 mm. in both eastern and western examples. It is more uniformly colored than

basaliata, and the brownish areas before and after the median area are suffused with darker scaling and much less contrasting. The blackish patch in the subterminal area is present in *grandis*, but the whitish patch below it is more commonly obscured or entirely lacking, especially in eastern specimens. *Grandis* tends to be more constant than *basaliata* in both size and coloring, although in the eastern part of its range there is a form with primaries entirely suffused with reddish brown. I have seen no counterpart of this form in *basaliata*.

I do not know the form *saanichata* of Swett, but the original description reads very much as though it referred to a form corresponding to the more gayly colored variants of *basaliata* with light brown areas contrasting sharply with the blackish median band.

Eastern *grandis* are in general somewhat darker than western examples, but there is scarcely enough difference to warrant a racial name.

The female genitalia of *grandis* have the ductus bursae similarly chitinized but a little stouter. The peculiar membranous connection interrupting the otherwise rigid ductus in *basaliata* is entirely lacking in *grandis*, and the ductus abruptly joins the bursa part way down the ventral side, not apically as in *basaliata*. The signum is of entirely different form, consisting of two disconnected portions of irregular shape, one roughly ventral and the other dorsal, with spines protruding inward. Slides of females from Sonoma Co., California and Cape Breton Is., N.S. agree perfectly.

In the west *grandis* occurs through southern British Columbia, Washington, Oregon and southward in California at least to Sonoma County in June. Bowman records it from the vicinity of Edmonton, Alta. One might expect it throughout the mountainous regions of the north-west but few records are available. In the east we have it only from the zone of coniferous forest above 3000 feet in the White Mts., N.H. (Jefferson Notch, Half-way House) and an area of similar forest conditions in Cape Breton Highlands National Park, N.S. (French Mt., 1390 ft., North Mt., 1460 ft.), occurring in July and early August. It was very common at the Cape Breton localities.